EFFECT OF PAKEM METHOD (PARTICIPATIVE, ACTIVE, CREATIVE, EFFECTIVE, FUN) METHODE ON SMOKING HABIT OF V ON STUDENTS IN INDUSTRIAL TECHNOLOGY VOCATIONAL *MAKASSAR*

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ABSTRACT

The aim of the study is to determine the effect of PAKEM (Participatory, Active, Creative, Effective, and Fun) method on smoking habits of students in vocational school of Makassar Industrial Technology.The study employed a quasi-experimental design with randomized pre-test post-test control group. Samples were 70 students of grade XI of Industrial technology vocational school of Kartika Wirabuana Makassar. Samples were withdrawn with systematic random sampling. Data were collected with questionnaires and were analyzed with paired t-test, Wilcoxon test, unpaired t-test, and Mann-Whitney test.The result of the research indicated that there are significant PAKEM on smoking habit, namely knowledge, attitudes, and actions (p=0,000, p=0,000, p=0,000, and p<0,05), in Makassar Industrial Vocational School of Technology.

Key Words: PAKEM,knowledge, attitudes, practice, adolescents.

INTRODUCTION

Smoking is an epidemic that contribute to public health problems in the world and be a risk factor largely preventable death (Karekla, 2009). Consumption cigarette increased globally (WHO, 2013b). The number of smokers in the world has reached 2.3 billion people (WHO, 2013a). In the world today, the whole amounting to 21% of men and 17% of women were smokers (CDC, 2012).

Indonesia is the third largest tobacco consumer in the world and has increased significantly in the last two decades. In Indonesia, amounting to 67.4% of men and 4.5% of women consisting of 36.1% of the population (61.4 million people) currently smoke. In Indonesia, smoking is The main forms of tobacco use and 34.8% (59.9 million) of the adult population current smoke (WHO, 2011). Results of monitoring of Indonesian Commission for Child Protection (KPAI) showed that active smoking habits in children tends to rise and begins at increasingly younger age, ie at the end of school age or adolescence (KPAI, 2013). Based on data from *the Global Youth Tobacco Survey* states that one-third of students in Indonesia reported trying the first cigarette before the age of 10 years (Aditama et al, 2008 on *the Global Tobacco Free Kids,* 2013).

Data Health Research (Riskesdas) in 2013 showed that the average proportion of current smokers in Indonesia is 29.3%. The proportion of current smokers every day at age 30-34 years

at 33.4 percent, ages 35-39 years (32.2%), 25-29 years (29.8%), 20-24 years (27.2%) , 15-19 years (11.2%), and 10-14 years (0.5%). While the proportion of daily smokers among men is 47.5%, more in compare female smokers in the amount of 1.1%. Average cigarettes smoked per day population aged ≥10 years was 12.3 stem (equivalent to a pack). The number of smokers in South Sulawesi is currently at 27%. A total of 22.8% who smoked every day and 4.2% who occasionally. The mean number of cigarettes smoked population aged ≥10 years in South Sulawesi was 14.6% (Ministry of Health, 2013). The number of smokers in the city of Makassar is 22.1% or approximately 287 300 with an average consumption is 10.6 cigarettes per day, or about 3 million cigarettes every day. Of the number of smokers, there were 2.2% at age 10-14 years with a mean cigarette consumption of 5.2 cigarettes per day. A total of 0.8% started smoking daily at the age of 5-9 years and 7.7% at age 10-14 years (Maidin, 2011).

A preliminary survey of smoking behavior conducted in SMK Kartika Wirabuana shows that of the 611 students of class X, XI, and XII as many as 316 students (51.7%) who smoke. There are at 49.1% of students who smoked every day with the number of cigarettes smoked is less than 10 cigarettes (68.4%), 10-20 trunk (27.2%), and more than 20 cigarettes (4.4%). Smoking behavior conducted in Vocational Industrial Technology showed that of the 206 students of class X, XI, and XII as many as 108 students (52.4%) who smoke. There are at 41.7% of students who smoked every day with the number of cigarettes smoked is less than 10 cigarettes (81.5%), 10-20 trunk (13.0%), and more than 20 cigarettes (5.6%).

Knowledge and attitudes about the dangers of smoking is one of the factors that can lead to adolescent smoking. Young if it has knowledge and a positive attitude towards the dangers of smoking will affect their smoking behavior (Maseda et al., 2013). Health education is a form of primordial prevention effective to avoid the habit of smoking in adolescents (Subramanian et al., 2013). Education health has proven effective in improving knowledge adolescent about the dangers of smoke as well as have changed adolescent attitude toward cigarette because most teens want to stop smoking (Salaudeen et al., 2011).

Some forms of health education methods often do such counseling or lectures, but in fact this method tends to be boring for students. Therefore, other methods have to be much more interesting and can stimulate a person to focus on capturing and understanding the information provided in depth. PAKEM (Participatory, Active, Creative, Effective, and Fun) including one centered educational methods and participants are interesting thus creating motivation in exploration and creativity (Rusman, 2012).

Research on PAKEM done by Ekalia (2013), showed that the intervention PAKEM with visual media limb teachers through singing and applause gives rise can be seen from the change for the better after the *pretest* and *posttest.* Another study conducted by Wu, et al (2013) in the form of *role play* and a talk show that after the intervention, the average of the total score increased from 41.7 attitude to 43.2 ($p = 0.001$), and total knowledge score increased from 6.4 to 8.2 ($p < 0.001$). The average value of the action is 31.2 (maximum score = 50) and the results showed that scores the actions associated with attitudes rather than knowledge. Anti-smoking programs are conducted on high school students produce positive changes both the knowledge and attitudes and effective in helping to prevent smoking among adolescents.

This study aimed to determine the effect PAKEM (Participatory, Active, Creative, Effective, and Fun) on the smoking behavior of students Vocational Industrial Technology Makassar.

MATERIALS AND METHODS

Location Research

The research was conducted in SMTI Makasssar and SMK Kartika Wirabuana Makassar. The choice of location is based on the number of the male students in private vocational school in Makassar. Both of these schools are schools located in different sub-districts so that a given intervention can be controlled and reduce the bias effect of education.

Design and Research Variables

This type of research is a *quasi-experimental* (quasi-experimental) to design *a randomized pre-test post-test control group design* that aims to determine the effect on smoking behavior PAKEM vocational students Makassar City Industrial Technology.

Population and Sample

The population in this study were all male students smokers obtained from preliminary studies and active registered as a Class XI student of SMK Kartika Wirabuana Makassar 115 people and Technological Industry Makassar many as 36 people, with a total population of as many as 151. Based on a large The sample obtained sample size for each group that is in the intervention group of 35 people and a control group of 35 people. So that the total sample size is 70 people. Sampling was done by *systematic random sampling.*

Data Collection

Primary data obtained preliminary survey of student smokers preliminary study of smoking behavior in SMK Kartika Wirabuana and Vocational Industrial Technology Makassar. Primary data were obtained directly from observations during the research process, in which the intervention group was given PAKEM and the control group was only given counseling and observed and recorded the development and progress by researchers for 7 weeks. Collecting data by questionnaire includes questions about the characteristics of the respondents, knowledge, attitudes, and actions are completed by the respondent.

Data Analysis

Univariate analysis conducted to gain an overview of the research problem by describing each of the variables used in this study, namely by looking at the picture of the frequency and distribution of a single percentage related to the research objectives. Bivariate analysis was conducted to analyze the differences between the independent variables and the dependent variable. Because of this design using a quasi-experimental study, we used two different test mean of the dependent and independent two different test mean.

RESULTS

Characteristics of Respondents

Results of univariate analysis illustrates the distribution of respondents by respondent characteristics (age, if a family member at home who never smoked and have a family member at home who still smoke) and a description of the respondents' knowledge of smoking variables. Age of respondents in the intervention group is at most 17 years of age as many as 23 people (65.7%) and the least was 16 years old, 12 people (34.3%), whereas for the control group is at most 17 years of age as many as 18 people (51.4 %) and the least was the age of 15 years as much as one person (2.9%) (Table 1).

Characteristics of respondents by family members at home who never smoked as many as 30 people (85.7%) in the intervention group and 26 (74.3%) in the control group. Characteristics of respondents by family members at home who still smoke are in the intervention group of 24 people (68.6%) are members of a family home is still smoking and non-smoking as many as 11 people (31.4%), whereas in the control group were 22 persons (62.9%) were family members at home is still smoking and non-smoking as many as 11 people (31.4%) (Table 1).

Scoring average (mean) of the respondents' knowledge of smoking in both study groups are in the intervention group during pre-test was 15:57, on the post-test 1 increased to 22:54 and during the post-test 2 increased the mean value becomes 23:20. Whereas the control group showed that the average score of respondents' knowledge about smoking at the time of the pre-test is 13.69, the post-test 1 increased to 18:03 and during the post-test 2 decreased the mean value becomes 16.83 (Table 2).

The average score (mean) respondents' attitudes about smoking in both study groups are in the intervention group during pre-test is 63.80, the post-test 1 increased to 86.83, and in post-test 2 increased the mean value becomes 90.26. Whereas the control group showed that the average score of respondents' attitudes about smoking at the time of the pre-test is 62.69, the post-test 1 increased to 78 220, and at the post-test 2 decreased the mean value becomes 76.83 (Table 2).

On average the act of smoking respondents based on the number of cigarettes smoked per day (rod) in both study groups are in the intervention group during pre-test is 7.06 (± 7 cigarettes per day) and so does the post-test 1, no changes in the mean Smoking average respondent is still 7:06. But in post-test 2 decreased the mean value is the average number of cigarettes the respondent be 2:57 (± 3 cigarettes per day). Sedangkkan in the control group showed that the average number of cigarettes the respondent at the time of the pre-test was 9.77 (± 10 cigarettes per day and the post-test 1, no changes in the average cigarette respondents are still 9.77 (± 10 cigarettes per day). But there is decrease in the average number of cigarettes respondents were 7.69 (± 8 stems per day) during the post-test 2 (Table 2).

Bivariate Analysis

Having given PAKEM in pre-test to post-test 2, an increase in the average value scores (mean) respondents' knowledge about cigarettes and giving control every week for 7 weeks. Statistical test results obtained value of $p = 0.000$ ($p < 0.05$), which indicates that there are significant differences in mean scores (mean) knowledge of the respondent at the time of the pre-test and post-test 2, so it can be concluded that there was an effect on knowledge PAKEM respondents about cigarettes. Whereas the control group showed that during the pre-test to post-test 2, an increase in the average value scores (mean) of the respondents' knowledge of smoking after being given counseling and without giving control every week. Statistical test results obtained value of $p = 0.000$ ($p < 0.05$), which indicates that there are significant differences in mean scores (mean) knowledge of the respondent at the time of the pre-test and post-test 2, so it

can be concluded that there was an effect of extension methods to knowledge respondents about cigarettes (Table 3).

An increase in the average score (mean) respondents' attitudes about smoking after being given PAKEM and giving control every week for 7 weeks during the pre-test to post-test 2. Statistical test results obtained value of $p = 0.000$ ($p < 0.05$) showed that there are significant differences in mean scores (mean) the attitude of the respondents at the time of the pre-test and post-test 2, so it can be concluded that there was an effect on the attitudes of respondents PAKEM about cigarettes. Whereas the control group showed an increase in the average value of scores (mean) respondents' attitudes about smoking after being given counseling and without giving control every week during the pre-test to post-test 2. Statistical test results obtained value of $p = 0.000$ ($p < 0.05$) shows that there is a significant difference on average scores (mean) attitude of respondents at the time of the pre-test and post-test 2, so that it can be concluded that there was an effect of extension methods on attitudes about smoking respondents (Table 4).

Variable action, a decline in the average number of cigarettes smoked respondents after given PAKEM and giving control every week for 7 weeks during the pre-test to post-test 2. Statistical test results obtained value of $p = 0.000$ ($p < 0.05$) that shows that there is a significant difference the average number of cigarettes the respondent at the time of the pre-test and post-test 2, so it can be concluded that there was an effect of the act of smoking PAKEM respondents. A decline in the average number of cigarettes smoked respondents after being given counseling and without giving control every week during the pre-test to post-test 2. Statistical test results obtained value of $p = 0.000$ ($p < 0.05$), which indicates that there are significant differences the average number of cigarettes the respondent at the time of the pre-test and post-test 2, so it can be concluded that no extension method to measure the effect of smoking respondents (Table 5).

Comparison between the intervention group and the control group based on the results of statistical tests obtained during pre-test $p = 0.001$ ($p < 0.05$) showed that there are significant differences in the average scores of knowledge respondents between the intervention and control groups. Statistical test results when the post-test 1 that the value of $p = 0.000$ ($p < 0.05$) showed no significant difference in mean score of knowledge respondents between the intervention and control groups. Statistical test results when the post-test 2 was obtained p value = 0.000 ($p < 0.05$) showed no significant difference in mean score of knowledge respondents between the intervention group and the control group (Table 6).

Variable attitude, statistical test results obtained during pre-test p = 0.663 (p> 0.05), which indicates that there was no significant difference in the average score of the attitude of the respondents between the intervention and control groups. Statistical test results when the post-test 1 that the value of p = 0.000 (p <0.05) showed no significant difference in the average score of the attitude of the respondents between the intervention and control groups. Statistical test results when the post-test 2 was obtained p value = 0.000 (p <0.05) showed no significant difference in the average score of the attitude of the respondents between the intervention group and the control group (Table 6).

Variable action, the results of statistical tests obtained during pre-test p = 0167 (p> 0.05), which indicates that there was no significant difference in the average number of cigarettes respondents between the intervention and control groups. Statistical test results when the post-test 1 that the value of p = 0167 (p> 0.05) showed no significant difference in the average number of cigarettes respondents between the intervention and control groups. However, the results of statistical tests when the post-test 2 was obtained p value = 0.000 (p <0.05), indicating no significant difference in the average score of the act of smoking respondents between the intervention group and the control group (Table 6).

DISCUSSION

This study shows that an increase in the average scores (mean) students' knowledge of smoking after being given PAKEM and giving control every week for 7 weeks. The results of statistical tests for the variables of knowledge obtained p value = 0.000 which indicates that there is a significant difference on average scores (mean) knowledge before and after the intervention. So it can be concluded that there is influence PAKEM on students' knowledge of smoking.

Variable attitude during the pre-test to post-test 2 an increase in the average score (mean) respondents' attitudes about smoking after being given PAKEM and giving control every week for 7 weeks. Statistical test results obtained value of p = 0.000 (p <0.05), which indicates that there are significant differences in mean scores (mean) the attitude of the respondent at the time of the pre-test and post-test 2, so it can be concluded that there was an effect on attitudes PAKEM respondents about cigarettes.

An increase in the average score (mean) knowledge and attitudes about smoking are caused by the intervention PAKEM given. Giving cigarette material that combines several methods, along with the help of various tools and media make the process of giving the material becomes active, creative, effective and fun. This makes participants be interested, more

concentrated and easier to absorb the material provided so that respondents can understand the material well and affect respondents' attitudes about smoking.

Variable action during the pre-test to post-test 2 decreased the average number of cigarettes smoked after given PAKEM and giving control every week for 7 weeks. Statistical test results obtained value of $p = 0.000$ ($p < 0.05$), which indicates that there are significant differences in the average number of cigarettes the respondent when the pre-test and post-test 2, so it can be concluded that there was an effect of smoking respondents PAKEM action.

A decrease in the average number of cigarettes smoked during the pre-test to post-test 2 is affected by the provision of smoking material with PAKEM and accompanied by a daily journal control act of smoking respondents. Respondents suggested alternative solutions to the problem of smoking they are about what they know, what they need to know and what they need to carry forward related to the smoking problem. This affects the respondent's decision to apply the problem-solving in everyday life that is changing the act of smoking by reducing the number of cigarettes smoked slowly.

This study is in line with research conducted Ekalia (2013), the autistic student in Special Education classes 1 to mastery of subject matter limb Natural Sciences showed that the intervention PAKEM with visual media limb teachers through singing and clapping showed more change well after the *pre-test* and *post-test.* Before the intervention through the use PAKEM, learning outcomes mastery of limbs in children with autism in the first grade Special Education State Seduri Mojosari very low between ± 40-50 and after the intervention showed no marked change with increasing values ± 60- 80. Here's a table synthesis of exposure to various studies that have been described previously. Another study by Saptaningrum (2010), indicates that the application of PAKEM with a thematic approach is one of the strategies to enable and assist students in building their own knowledge with keterlibatnya in the learning process, so that students better understand the subject matter.

Another study conducted by Wu et al (2013), to show the effect of school-based tobacco prevention program on knowledge and attitudes of high school students in Taiwan. Tobacco prevention programs among high school students conducted in the form of *role play* and lectures. *Role play* is done is play the role of smoking-related rejected offers from friends and about the dangers of smoking. The results showed that after the intervention, the average of the total score increased from 41.7 attitude to 43.2 ($p = 0.001$), and total knowledge score increased from 6.4 to 8.2 ($p < 0.001$). The mean value -rata action is 31.2 (maximum score = 50) and the results

showed that scores the actions associated with attitudes rather than knowledge. Anti-smoking programs are conducted on high school students produce positive changes both the knowledge and attitudes and effective in helping to prevent smoking among adolescents.

Kanicka et al (2013), conducted research on the effect of health education programs on anti-tobacco 8th grade junior high school students in Bialystok. Anti-tobacco health education given in this study is in the form of exposure to photograph, film about the dangers of smoking, the method game by playing the role *(role-play)* and discussion. The results showed that students' knowledge about the negative effects of smoking showed an increase in knowledge after getting a health education program (photos, movies, *role play*, and discussion). In the intervention group students' knowledge increased 21.7% with $p < 0.001$, ie, the female students ($P < 0.001$) and male students ($P = 0.044$) were not found in the control group. This means there is a significant effect of health education program of anti-smoking to change students' knowledge of smoking.

CONCLUSIONS AND RECOMMENDATIONS

Based on the research on the effects on smoking behavior PAKEM on 70 respondents, it was concluded that there was an effect PAKEM to knowledge, attitudes, and the act of smoking students Technological Industrial Makassar, meaning PAKEM effective in improving knowledge and attitudes about smoking cigarettes and lowering action. Researchers suggest the need for health education about smoking by using PAKEM to improve knowledge and attitudes about smoking cigarettes and lowering action on male and female students at various levels of schools both public and private schools in the city of Makassar. In addition, the need to conduct research related to PAKEM cigarette in a longer period of time so that more targeted research to quit smoking completely.

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APPENDIX

Table 1. Characteristics of respondents in the intervention group and the control group in Makassar 2014

Characteristics of Respondents	Intervention group		Control group	
	n	%	n	%
Age				
15 years	0	0.0	1	2.9
16 years	12	34.3	12	34.3
17 years	23	65.7	18	51.4
18 years	0	0.0	4	11.4
Is There Ever Family members at home who smoke				
Yes	30	85.7	26	74.3
Not	5	14.3	9	25.7
Is There Still a Family Member at home who smoke				
Yes	24	68.6	22	62.9
Not	11	31.4	13	37.1

Source: Primary Data

Table 2. Characteristics of the respondents by a score of knowledge, attitude, and the act of smoking in the intervention group and the control group during pre-test, post-test 1 and post-test 2 in Makassar 2014

Value Statistics	Knowledge Score		
	Pre-Test	Post-Test 1	Post-Test 2
Intervention group			
Minimum	10	18	19
Maximum	23	27	27
Mean	15:57	22:54	23:20
SD	2,638	2,174	2,180
Control group			
Minimum	11	15	12
Maximum	18	22	23
Mean	13.69	18:03	16.83
SD	1,568	1,581	2,065
Value Statistics	Attitude Scores		
	Pre-Test	Post-Test 1	Post-Test 2
Intervention group			
Minimum	50	70	68
Maximum	91	104	103
Mean	63.80	86.83	90.26
SD	10 186	9099	7,485
Control group			
Minimum	37	56	56
Maximum	92	99	95
Mean	62.69	78.20	76.83
SD	11 108	10 454	8556
Value Statistics	Action (average number of cigarettes)		
	Pre-Test	Post-Test 1	Post-Test 2
Intervention group			
Minimum	1	1	0
Maximum	32	32	14
Mean	7:06	7:06	2:57
SD	6553	6553	2,923
Control group			
Minimum	1	1	0
Maximum	45	45	40
Mean	9.77	9.77	7.69
SD	9732	9732	8281

Table 3. Scores of knowledge respondents in the intervention group and the control group during pre-test, post-test and post-test 1 2 in Makassar 2014

Value Statistics	Knowledge Score		
	Pre-Test	Post-test 1	Post-test 2
Intervention group			
n	35	35	35
Mean	15:57	22:54	23:20
SD	2,638	2,174	2,180
SE	0.446	0367	0369
p value	0.000		
Control group			
n	35	35	35
Mean	13.69	18:03	16.83
SD	1,568	1,581	2,065
SE	0265	0.267	0.349
p value	0.000		

Table 4. Score attitudes of respondents in the intervention group and the control group during pre-test, post-test 1 and post-test 2 in Makassar 2014

Value Statistics	Attitude Scores			P value
	Pre-Test	Post-test 1	Post-test 2	
Intervention group				
n	35	35	35	p = 0.000
Mean	63.80	86.83	90.26	
SD	10 186	9099	7,485	
SE	1,722	1,538	1,265	
Control group				
n	35	35	35	p = 0.000
Mean	62.69	78.20	76.83	
SD	11 108	10 454	8556	
SE	1,878	1,767	1,446	

Table 5. Scores action da respondents in the intervention group while the control group pre-test, post-test 1 and post-test 2 in Makassar 2014

Value Statistics	Score Measures			P value
	Pre-Test	Post-test 1	Post-test 2	
Intervention group n Mean SD SE	35 7:06 6553 1,108	35 7:06 6553 1,108	35 2:57 2,923 0494	p = 0.000
Control group n Mean SD SE	35 9.77 9732 1,645	35 9.77 9732 1,645	35 7.69 8281 1,400	p = 0.000

Table 6. Differences in the respondents' knowledge scores in the intervention group and the control group during pre-test, post-test 1 and post-test 2 in Makassar 2014

Knowledge						
Value Statistics	Pre-test		Post-test 1		Post-test 2	
	Intervention group	Control group	Intervention group	Control group	Intervention group	Control group
n Mean Rank	35 43.63	35 27.37	35 50.96	35 20:04	35 52.20	35 18.80
p value	0.001		0.000		0.000	
Attitude						
n Mean SD SE	35 63.80 10 186 1,722	35 62.69 11 108 1,878	35 86.83 9099 1,538	35 78.20 10 454 1,767	35 90.26 7,485 1,265	35 76.83 8556 1,446
p value	0.663		0.000		0.000	
Action						
n Mean Rank	35 32.16	35 38.84	35 32.16	35 38.84	35 26.73	35 44.27
p value	0167		0167		0.000	